Claims:

1.   A computer implemented method for conducting an auction of a plurality of items wherein at least one computer receives bids and determines an allocation of at least one of the items, the auction including a dynamic auction phase followed by a later phase, the later phase comprising a package auction, the method comprising:

   d) implementing the dynamic auction phase on a computer, said dynamic auction phase comprising:

        a1) receiving bids from at least one bidder, said bids including at least an indicator of at least one of the items;

        a2) determining whether the dynamic auction phase of the auction should continue, based on received bids;

        a3) outputting auction information; and

        a4) repeating a1) – a3) if the dynamic auction phase of the auction is determined to continue;

   e) changing from the dynamic auction phase to the later phase, following a determination not to continue the dynamic auction phase; and

   f) implementing the later phase of the auction on a computer, the later phase comprising a package auction, said later phase comprising:

        c3) receiving bids from at least one bidder, said bids including at least an indicator of a package of items and an associated price for the package; and

        c4) determining an allocation of at least one of the items to one of the bidders based on received bids.

2.   A method as recited in claim 1 wherein each bid received in step a1) is a package bid including at least an indicator of a package of items and an associated price for the package.

3.   A method as recited in claim 2 wherein bids are constrained by an activity rule in the dynamic auction phase.

4.   A method as recited in claim 3 wherein bids are constrained by a revealed-preference activity rule in the dynamic auction phase.

5.   A method as recited in claim 1 wherein said step a1) includes transmitting a price vector to bidders prior to receiving said bids.

6.   A method as recited in claim 5 wherein bids are constrained by an activity rule in the dynamic auction phase.

7.   A method as recited in claim 6 wherein bids are constrained by a revealed-preference activity rule in the dynamic auction phase.

8.   A method as recited in claim 2 wherein the determining in the dynamic auction phase is based on solving a winner determination problem.

9.   A method as recited in claim 5 wherein the determining in the dynamic auction phase is based on comparing a sum of quantity vectors with an available quantity.

10.   A method as recited in claim 2 wherein the receiving in the dynamic auction phase includes the receiving of intra-round bids.

11.   A method as recited in claim 5 wherein the receiving in the dynamic auction phase includes the receiving of intra-round bids.

12.   A method as recited in claim 1 wherein the later phase comprises a sealed bid package auction.

13.   A method as recited in claim 12 wherein the determining in the later phase further includes determining a payment for each winning bidder.

14.   A method as recited in claim 13 wherein the determined allocation of items and payments is a core outcome relative to the received bids in the later phase.

15.   A method as recited in claim 13 wherein the determined allocation of items and payments is a core outcome relative to the received bids in the dynamic auction phase and the later phase.

16.   A method as recited in claim 13 wherein the determined allocation of items and payments is a bidder-optimal core outcome relative to the received bids in the later phase.

17.   A method as recited in claim 13 wherein the determined allocation of items and payments is a bidder-optimal core outcome relative to the received bids in the dynamic auction phase and the later phase.

18.   A method as recited in claim 12 wherein bids in the later phase are constrained by an activity rule.

19.   A method as recited in claim 12 wherein bids in the later phase are constrained by a relaxed revealed-preference activity rule.

20.   A method as recited in claim 1 wherein the later phase comprises a dynamic package auction.

21.   A method as recited in claim 20 wherein the determining in the later phase further includes determining a payment for each winning bidder.

22.   A method as recited in claim 21 wherein the determined allocation of items and payments is a core outcome relative to the received bids in the later phase.

23.   A method as recited in claim 21 wherein the determined allocation of items and payments is a core outcome relative to the received bids in the dynamic auction phase and the later phase.

24.   A method as recited in claim 21 wherein the determined allocation of items and payments is a bidder-optimal core outcome relative to the received bids in the later phase.

25.   A method as recited in claim 21 wherein the determined allocation of items and payments is a bidder-optimal core outcome relative to the received bids in the dynamic auction phase and the later phase.

26.   A method as recited in claim 20 wherein bids in the later phase are constrained by an activity rule.

27.   A method as recited in claim 20 wherein bids in the later phase are constrained by a relaxed revealed-preference activity rule.

28.   A method as recited in claim 12 wherein the later phase comprises a proxy auction.

29.   A method as recited in claim 28 wherein bids in the later phase are constrained by an activity rule.

30.   A method as recited in claim 28 wherein bids in the later phase are constrained by a relaxed revealed-preference activity rule.

31.   A method as recited in claim 20 wherein the later phase comprises a proxy auction.

32.   A method as recited in claim 31 wherein bids in the later phase are constrained by an activity rule.

33.   A method as recited in claim 31 wherein bids in the later phase are constrained by a relaxed revealed-preference activity rule.

34.   A method as recited in claim 12 wherein the determining in the later phase is based on solving a winner determination problem.

35.   A method as recited in claim 20 wherein the determining in the later phase is based on solving a winner determination problem.

36.   A method as recited in claim 28 wherein the determining in the later phase is based on solving a winner determination problem.

37.   A method as recited in claim 31 wherein the determining in the later phase is based on solving a winner determination problem.

38.   A computer implemented system for conducting an auction of a plurality of items wherein at least one computer receives bids and determines an allocation of at least one of the

items, the auction including a dynamic auction phase followed by a later phase, the later phase comprising a package auction, the system comprising:

a) means for implementing the dynamic auction phase on a computer, said means for implementing the dynamic auction phase comprising:

a1) means for receiving bids from at least one bidder, said bids including at least an indicator of at least one of the items;

a2) means for determining whether the dynamic auction phase of the auction should continue, based on received bids;

a3) means for outputting auction information; and

a4) means for repeating a1) – a3) if the dynamic auction phase of the auction is determined to continue;

b) means for changing from the dynamic auction phase to the later phase, following a determination not to continue the dynamic auction phase; and

c) means for implementing the later phase of the auction on a computer, the later phase comprising a package auction, said means for implementing said later phase comprising:

c1) means for receiving bids from at least one bidder, said bids including at least an indicator of a package of items and an associated price for the package; and

c2) means for determining an allocation of at least one of the items to one of the bidders based on received bids.

39.   A system as recited in claim 38 wherein the means for receiving bids of a1) receives a package bid including at least an indicator of a package of items and an associated price for the package.

40.   A system as recited in claim 39 wherein the means for receiving bids includes means to constrain said bids by an activity rule.

41.   A system as recited in claim 40 wherein the means for receiving bids includes means to constrain bids by a revealed-preference activity rule.

42.   A system as recited in claim 38 which further includes means for transmitting a price vector to bidders and means for enabling the means for receiving bids to receive said bids only after said price vector has been transmitted.

43.   A system as recited in claim 42 which includes means to constrain bids by an activity rule in the dynamic auction phase.

44.   A system as recited in claim 43 wherein the means to constrain bids constrains the bids by a revealed-preference activity rule.

45.   A system as recited in claim 39 wherein the means for determining of a2) solves a winner determination problem.

46.   A system as recited in claim 42 wherein the means for determining of a2) compares a sum of quantity vectors with an available quantity.

47.   A system as recited in claim 39 wherein the means for receiving bids of a1) receives at least intra-round bids.

48.   A system as recited in claim 42 wherein the means for receiving bids of a1) receives at least intra-round bids.

49.   A system as recited in claim 38 wherein means for implementing the later phase comprises means for implementing a sealed bid package auction.

50.   A system as recited in claim 49 wherein the means for determining of c2) further includes means determining a payment for each winning bidder.

51.   A system as recited in claim 50 wherein the means for determining produces a core outcome relative to the received bids of c1).

52.   A system as recited in claim 50 wherein the means for determining produces a core outcome relative to the received bids of a1) and c1).

53.   A system as recited in claim 50 wherein the means for determining produces a bidder-optimal core outcome relative to the received bids of c1).

54.   A system as recited in claim 50 wherein the means for determining produces a bidder-optimal core outcome relative to the received bids of a1) and c1).

55.   A system as recited in claim 49 which includes means to constrain bids received by the means for receiving of c1) by an activity rule.

56.   A system as recited in claim 49 which includes means to constrain bids received by the means for receiving of c1) by a relaxed revealed-preference activity rule.

57.   A system as recited in claim 38 wherein the means for implementing the later phase implements a dynamic package auction.

58.   A system as recited in claim 57 wherein the means for determining in the later phase further includes means for determining a payment for each winning bidder.

59.   A system as recited in claim 58 wherein the means for determining an allocation of items and payments determines a core outcome relative to the received bids in the later phase.

60.   A system as recited in claim 58 wherein the means for determining an allocation of items and payments determines a core outcome relative to the received bids in the dynamic auction phase and the later phase.

61.   A system as recited in claim 58 wherein the means for determining an allocation of items and payments determines a bidder-optimal core outcome relative to the received bids in the later phase.

62.   A system as recited in claim 58 wherein the means for determining an allocation of items and payments determines a bidder-optimal core outcome relative to the received bids in the dynamic auction phase and the later phase.

63.   A system as recited in claim 57 which further includes means for constraining bids in the later phase by an activity rule.

64.   A system as recited in claim 57 which further includes means for constraining bids in the later phase by a relaxed revealed-preference activity rule.

65.   A system as recited in claim 49 wherein the means for implementing the later phase implements a proxy auction.

66.   A system as recited in claim 65 which further includes means for constraining bids in the later phase by an activity rule.

67.   A system as recited in claim 65 which further includes means for constraining bids in the later phase by a relaxed revealed-preference activity rule.

68.   A system as recited in claim 57 wherein the dynamic package auction implemented by the means for implementing the later phase comprises a proxy auction.

69.   A system as recited in claim 68 which further includes means for constraining bids in the later phase by an activity rule.

70.   A system as recited in claim 68 which further includes means for constraining bids in the later phase by a relaxed revealed-preference activity rule.

71.   A system as recited in claim 49 wherein the means for determining of c2) solves a winner determination problem.

72.   A system as recited in claim 57 wherein the means for determining of c2) solves a winner determination problem.

73.   A system as recited in claim 65 wherein the means for determining of c2) solves a winner determination problem.

74.   A system as recited in claim 68 wherein the means for determining of c2) solves a winner determination problem.